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ABSTRACT

This study investigated the common practice in infant research of eliminating from reported data large numbers of subjects who prove uncooperative (sleepy, fatigued, fussy) during the experiment. It was suggested that these excluded infants constitute a special class of subjects and that the inclusion of their data would greatly alter the research results. Subjects compared were 37 3- to 6-month-old infants, 15 of whom were unable to finish the experiment sessions. Two visual and two auditory tests were administered and measured according to fixation time and cardiac deceleration. Activity data were collected by use of an infant stabilimeter. Results demonstrate that infants unable to complete the experiment show different attentive patterns from those able to complete the sessions. The findings suggest that elimination of large numbers of infants may result in serious biasing of obtained data. (Author/AJ)

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RB-70-35

WHAT'S THROWN OUT WITH THE BATH WATER: A BABY?

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Child Development, in press.

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Educational Testing Service
Princeton, New Jersey
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What's Thrown out with the Bath Water: A Baby?[1]

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Although the data are not formally reported, it is estimated that up to 30 per cent of the infants who participate in experiments within the first half-year of life fail to provide valid data and must be discarded as subjects. There are a variety of causes for this; most of them might be classified as state problems such as sleepiness, fatigue, or fussiness. The exclusion of such large numbers of subjects would, in animal or questionnaire research, be looked upon as having a potentially biasing effect on the reported data. No such assumption is made in human infant research. Indeed, it is implicitly stated that infants excluded are exactly like those used except for the fact that at that particular time of testing they were "uncooperative."

Whether this assumption is correct requires confirmation, for it may be possible that these excluded infants constitute a special class of subjects and the inclusion of their data would greatly alter the results. The present investigation was a first attempt to explore this sampling problem by observing the data available from "incomplete" subjects and comparing it to "complete" subjects seen at the same time.

Method

Subjects. Fifteen infants, three and six months of age, were unable to finish the experimental sessions, and they constituted the "incomplete"

group. The first twenty-two infants seen at the same time and the same ages who completed the experiment constituted the "complete" group. All subjects were volunteers, answering a newspaper announcement. No significant socioeconomic, sex, or other individual differences between complete and incomplete subjects were observed.

Procedure. Two experimental sessions, a week apart, were required for each subject. In one session (either first or second, depending on order) an infant received six 30-second trials--with a 30-second intertrial interval--of a three-lined visual stimulus (simple) followed by a 20-lined stimulus (complex) on the seventh trial. On the second session, the order was reversed. Also given on each session was a complex and a simple auditory series, the data for which will not be discussed. Data had to be available for all four (two visual and two auditory) series in order for an infant to be considered complete. There was no order to which day or which session was affected. Data reported here were generally from different days.

Measures. First fixation time and cardiac deceleration were obtained in the standard fashion for all infants (see Lewis, 1969). Activity data were collected by use of an infant stabilimeter (see Lewis & Wilson, 1970).

Three response dimensions were used to compare the infants' responses to the visual series: amount of response on trial 1, response decrement over the six trials $\left(\frac{\text{Trial 1 - Trial 6}}{\text{Trial 1}} \right)$, and response recovery on trial 7. Each of these parameters was obtained for fixation, cardiac deceleration (change in beats per minute), and activity decreases.

Results and Discussion

Fixation time. The mean fixation time for the incomplete Ss was 14.5 and 13.5 seconds for the simple and complex series on trial 1, a nonsignificant difference. For the complete subjects, the times were 8.7 and 14.8 seconds respectively, a significant difference (sign test $p < .05$, two-tailed). A difference score (complex-simple) in fixation was obtained in order to determine if there was a discrimination difference for both groups. The results indicated that the complete infants showed significantly more discrimination between the complex and simple stimuli than did the incomplete infants (Mann-Whitney U test $p < .01$). The response decrement data failed to reveal any group differences, while the response recovery data were reminiscent, although not significant, of the trial 1 data; that is, the complete subjects showed greater discrimination between visual series. The mean data for the complete subjects were 9.6 and 12.7 seconds for simple and complex series, while the data were 11.6 and 12.0 seconds for the incomplete subjects.

Activity. The activity data in general failed to indicate any significant differences between subjects. There was an indication of greater quieting on trial 1 for the complete as opposed to incomplete infants, with mean scores of .46 and .36 respectively (higher values indicate greater decreases in ongoing activity; Mann-Whitney U test $p < .10$).

Cardiac deceleration. The cardiac deceleration data showed the same pattern as the activity data: for amount of deceleration on trial 1, complete subjects had a mean of 9.23 bpm drop in rate while incomplete Ss had a mean of 7.63 bpm drop in rate. While there were no differences

in response decrement, the recovery data revealed that the complete subjects showed more than twice the amount of recovery than the incomplete subjects (10.47 bpm drop as opposed to 4.91 bpm drop; Mann-Whitney U test $p < .01$).

Infants with incomplete data constituted 26 per cent of 60 subjects finally seen at three and six months of age. The results demonstrate that on those tasks where data are available, infants unable to complete the experiment show different attentive patterns than those who are able to complete the sessions. This suggests that our implicit assumption about the composition of those infants who are excluded from data analysis may be wrong. Moreover, the elimination of infants, especially in large numbers, may result in serious biasing of the obtained data. It is clear that the generality of the normative findings in infancy may have to be tempered by the sampling constraint.

References

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Footnote

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